# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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In re Application of:

Wang et al.

Serial No.: 10/799.146

Confirmation No.: 7933

Filed:

March 12, 2004

For:

Method of Depositing an Amorphous Carbon Film for

Etch Hardmask Application

MAIL STOP APPEAL BRIEF-PATENTS Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Group Art Unit: 2813

Examiner:

Monica D. Harrison

### CERTIFICATE OF MAILING OR TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Mail Stop Appeal Brief-Plants, Cormissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, or electronically transmitted to the U.S. Patent and Trademark Cffler via EFS-Web to the attention of Examiner Harrison, on the date shown below.

May 29 . 2007

Steven H. Ver Steed

Dear Sir:

## RESPONSE TO NOTICE OF NON-COMPLIANT APPEAL BRIEF

Appellants submit this Response to Notice of Non-Compliant Appeal Brief to the Board of Patent Appeals and Interferences in response to the Notice of Non-Compliant Appeal Brief mailed April 30, 2007. This Response to Notice of Non-Compliant Appeal Brief is believed to be timely since mailed by the due date of May 30, 2007, as set by mailing a Notice of Non-Compliant Appeal Brief on April 30, 2007. Please charge any additional fees that may be required to make this Response to Notice of Non-Compliant Appeal Brief timely and acceptable to Deposit Account Nο 20-0782/APPM/008244/KMT.

#### Summary of Claimed Subject Matter

Claimed embodiments of the invention provide a method for processing a substrate comprising depositing an amorphous carbon layer on the substrate (p.6, paragraph [0020], lines 3-4).

In the embodiments of claim 1, a method for processing a substrate in a processing chamber comprises positioning the substrate in a processing chamber (p. 6-7, paragraph [0021], lines 1-8), introducing a processing gas into the processing chamber wherein the processing gas comprises one or more hydrocarbon compounds without containing silicon and an argon carrier gas (p.7-8, paragraph [0024], line 1 – [0025], line 10), generating a plasma of the processing gas by applying power from a dual-frequency RF source (p.8, paragraph [0026], lines 1-11; p.8, paragraph [0027], lines 1-2), and depositing an amorphous carbon layer consisting essentially of hydrogen and carbon on the substrate (p.15, paragraph [0052], lines 1-2, Figure 2A, item 230; p.7, paragraph [0022], lines 1-7).

In the embodiments of claim 9, a method for processing a substrate in a processing chamber comprises forming a dielectric material layer on a surface of the substrate (p.15, paragraph [0051], line 1, Figure 2A, item 220), depositing one or more amorphous carbon layers consisting essentially of hydrogen and carbon on the dielectric material layer (p.15, paragraph [0052], lines 1-2, Figure 2A, item 230; p.7, paragraph [0022], lines 1-7) by a process comprising introducing a processing gas comprising one or more hydrocarbon compounds without containing silicon and an argon carrier gas (p.7-8, paragraph [0024], line 1 – [0025], line 10), generating a plasma of the processing gas by applying power from a dual-frequency RF source (p.8, paragraph [0026], lines 1-11; p.8, paragraph [0027], lines 1-2), etching the one or more amorphous carbon layers to form a patterned amorphous carbon layer (p.17, paragraph [0058], lines 3-5, Figure 2B), and etching feature definitions in the dielectric material layer corresponding to the patterned one or more amorphous carbon layers (p.17, paragraph [0059], lines 1-3, Figure 2C).

In the embodiments of claim 22, a method for processing a substrate comprises depositing one or more dielectric layers on a substrate surface (p.15, paragraph [0050],

lines 1-3, Figure 2A, item 210; p.15, paragraph [0051], line 1, Figure 2A, item 220), wherein the one or more dielectric layers comprise silicon, oxygen, and carbon and has a dielectric constant of about 3 or less (p. 15, paragraph [0050], lines 4-6, Figure 2A, item 210), forming one or more amorphous carbon layers consisting essentially of hydrogen and carbon on the one or more dielectric layers (p.15, paragraph [0052], lines 1-2, Figure 2A, item 230; p.7, paragraph [0022], lines 1-7) by a process comprising introducing a processing gas comprising one or more hydrocarbon compounds without containing silicon and an argon carrier gas (p.7-8, paragraph [0024], line 1 - [0025], line 10), generating a plasma of the processing gas by applying power from a dualfrequency RF source (p.8, paragraph [0026], lines 1-11; p.8, paragraph [0027], lines 1-2), defining a pattern in at least one region of the one or more amorphous carbon layers (p.17, paragraph [0058], lines 3-5, Figure 2B), forming feature definitions in the one or more dielectric layers by the pattern formed in the at least one region of the one or more amorphous carbon layers (p.17, paragraph [0059], lines 1-3, Figure 2C), and depositing one or more conductive materials in the feature definitions (p.18, paragraph [0061], lines 1-2, Figure 2E, item 260).

#### COMMENTS

In response to the Notice of Non-Compliant Appeal Brief mailed April 30, 2007, Appellants submit the above corrected Summary of Claimed Subject Matter. In the Summary of Claimed Subject Matter, Appellants summarize the independent claims 1, 9, and 22 pending in the application rather than summarize claims 11, 17, 24, 26, and 27 as was presented in the Appeal Brief filed March 9, 2007.

According to M.P.E.P. § 1205.03 (b), "When the Office holds the brief to be defective solely due to appellant's failure to provide a summary of the claimed subject matter as required by 37 CFR 41.37(c)(1)(v), an entire new brief need not, and should not, be filed. Rather, a paper providing a summary of the claimed subject matter as required by 37 CFR 41.37(c)(1)(v) will suffice." Thus, Appellants submit the above Summary of the Claimed Subject Matter.

Appellants respectfully reiterate that the final rejection of claims 11, 17, 18, 20, 24, 26, 27, 34, and 37 is appealed. The Examiner errs in finding that *Huang et al.* anticipates claims 11, 17, 18, 20, 24, 26, 27, 34, and 37. It is respectfully requested that the Examiner's rejections be reversed.

Respectfully submitted,

Keith M. Tackett

Registration No. 32,008

Patterson & Sheridan, L.L.P. 3040 Post Oak Blvd., Suite 1500

Ki 2 zha

Houston, TX 77056

Telephone: (713) 623-4844 Facsimile: (713) 623-4846

Attorney for Appellants